

Notice of Allowability

Application No.

10/737,312

Applicant(s)

AMBER ET AL.

Examiner

Robert J. Hoffberg

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 4/15/07.
2. ☒ The allowed claim(s) is/are 1-3 and 5-14.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☒ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date see attached.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Kathryn Chelini, Reg. No. 52723 on 4/17/07.

2. Amend claims 1, 12 and 13 as follows:

Claim 1: A system for coupling a heat sink to an electrical device having one or more electrical components independently of a clamping member that is used to place a coupling force between ~~the one or more electrical~~ device ~~devices~~ and a substrate to which the ~~one or more electrical~~ device ~~is~~ ~~devices~~ are to be electrically connected, the system comprising: a clamping member for providing a compressive force on the ~~one or more electrical~~ device ~~devices~~ against the substrate, the clamping member defining a through-hole leading to ~~the~~ each electrical device, and further defining one or more relief volumes to prevent the clamping member from contacting a portion of a surface of the ~~one or more electrical~~ device ~~devices~~; a heat-conducting member in the through-hole of the clamping member and adapted to thermally contact the electrical device to conduct heat into or out of the electrical device, wherein the heat-conducting member provides a separate compressive force on the electrical device than separately from the compressive force provided by the clamping member, where a lower surface of the heat-conducting member includes one or more relief volumes that prevent the heat-

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conducting member from contacting a portion of the ~~[[a]]~~ surface of the electrical device; a resilient member located within the clamping member through-hole in which the heat-conducting member is located, for urging the heat-conducting member into thermal contact with the electrical device; and a heat sink in thermal contact with the heat-conducting member.

Claim 12: The coupling system of claim 11 in which the clamping member directly contacts some but not all of an upper surface of the electrical device ~~upper surface~~.

Claim 13: A system for coupling a heat sink to an electrical device having one or more electrical components independently of a clamping member that is used to place a coupling force between the one or more electrical device ~~devices~~ and a substrate to which the ~~one or more electrical device~~ is devices are to be electrically connected, the system comprising: a clamping member for providing a compressive force on the ~~one or more electrical device~~ devices, to push the ~~one or more electrical device~~ devices against the substrate, the clamping member defining a through-hole leading to the ~~each~~ electrical device, and further defining one or more relief volumes to prevent the clamping member from contacting a portion of a surface of the ~~one or more electrical device~~ devices; a heat-conducting post in the through-hole of the clamping member with an enlarged end adapted to thermally contact the electrical device ~~separately from the compressive force provided by the clamping member~~, to conduct heat into or out of the electrical device, wherein the heat-conducting member provides a separate compressive force on the electrical device than the compressive force provided by the

clamping member, where the enlarged end of the heat-conducting member includes one or more relief volumes that prevent the heat-conducting member from contacting a portion of a surface of the electrical device; a heat sink in thermal contact with the heat-conducting post; and a spring in the through-hole in the clamping member adapted to be compressed between the clamping member and the enlarged end of the post, to assist in thermal contact between the enlarged end and the electrical device.

Response to Arguments

3. The examiner objection to the drawings is maintained. Applicant added reference number 50 in their amendment to the specification dated 11/17/06.

Drawings

4. The drawings are objected to under 37 CFR 1.83(a) because they fail to show #50 as described in the specification (see applicant's specification amendment dated 11/17/06). Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency.

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Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

REASONS FOR ALLOWANCE

5. The claims 1-3 and 5-14 are allowable over the prior art of record for at least the reason that the prior art fails to teach or suggest a structure as in claim 1 or 13, comprising a clamping member for providing a compressive force on an electrical device, to push the electrical device against a substrate, the clamping member having a through-hole and having one or more relief volumes, a heat conducting member in the through-hole of the clamping member and adapted to thermally contact the electrical device to conduct heat into or out of the electrical device separately from the compressive force provided by the clamping member, where a surface of the heat-conducting member includes one or more relief volumes, a resilient member or spring located within the clamping member through-hole for urging the heat-conducting member into thermal contact with the electrical device; and a heat sink in thermal contact with the heat conducting member. The aforementioned limitations in combination with all remaining limitations of the respective claims are believed to render said independent claims 1 or 13 and all claims dependent therefrom patentable over art of record.

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6. The closest references to the present invention are believed to be as follows: Shah et al. (US 5,127,837) teach an electrical device, a substrate, a clamping member for providing having a through-hole, a heat conducting member in the through-hole providing a compressive force on the electrical device, a resilient member urging the heat-conducting member into thermal contact with the electrical device and a heat sink in thermal contact with the heat-conducting member, but fails to disclose that the heat-conducting member thermally contacts the electrical device with a separate compressive force than the clamping member uses to push the electrical device to the substrate. These above listed references all lack the specific structure and arrangement in claims 1 or 13.

7. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

8. None of the cited references, either taken alone or in combination is believed to render the present invention unpatentable as claimed.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert J. Hoffberg whose telephone number is (571) 272-2761. The examiner can normally be reached on 8:30 AM - 4:30 PM Mon - Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jayprakash Gandhi can be reached on (571) 272-3740. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RJH 4/17/07 *RJA*

J. Gandhi
JAYPRAKASH GANDHI
SUPERVISORY PATENT EXAMINER